

IAP11 Rec'd PCT/PTO 10 AUG 2005 [stamp:]  
PCA 2004/002217

December 12, 2005 12.12.05

....from a source of primary stereo sound, conventional or encoded, of generating a second stereophonic source different from the first, in particular by eliminating the common signals from the source of its primary stereo in order to produce a purely stereophonic sound.

A more particular objective is that the device is connected to the left and right primary signals and that this device produces two new signals; these new signals are produced by the instantaneous difference in amplitude and frequency between the left and right primary signals respectively. The result for a listener is the perception of a new stereo modulation of the primary signals thus giving the impression of a third sound dimension.

Another objective is that the difference in frequency and amplitude is channeled by polarized capacitors that let pass a sound section at a time, having an intensity proportional to the difference of the potential between the two primary signals.

#### DRAWINGS

With respect to the drawings that illustration an embodiment of the invention,

FIG. 1 is a perspective of a device in use.

FIG. 2 is a preferred circuit diagram.

FIG. 3 is a diagram of the circuit of a second embodiment of the invention.

FIG. 4 is an illustration of an example of the different signals.

FIG. 5 is a graphic illustration of a right primary signal.

FIG. 6 is a graphic illustration of a left secondary signal.

FIG. 7 is a graphic illustration of a right secondary signal.

FIG. 8 is a graphic illustration of a superposition of the right primary and left primary signals.

FIG. 9 is a graphic illustration of a tertiary signal.

#### DETAILED DESCRIPTION OF THE DRAWINGS

In the description that follows and in the accompanying drawings, similar numbers refer to identical parts in the figures.

FIG. 1 illustrates a device 20 that includes a box with a top side 22 and a lateral side 24. On the top side, one observes four electrical contacts: input of the left primary stereo signal 34,

The embodiments for which an exclusive property or privilege right is claimed are defined as follows:

1. A device that converts two primary sound signals, the left and right signals of a stereo source, into several different signals each comprising a positive terminal and a negative terminal, with four of these signals identified as follows: a first signal defined by a left primary signal (26), a second signal defined by a right primary signal (28), a third signal defined by a left secondary signal (30) and a fourth signal defined by a right secondary signal (32), with these secondary signals being different among each other and different from said primary signals; with said device comprising:
  - two inputs (34, 36), one left, connected to said left primary signal and a right one, connected to said right primary signal, with each input comprising a positive terminal and a negative terminal,
  - two outputs (30, 32), one left, connected to said left secondary signal and a right one, connected to said right secondary signal with each output comprising a positive terminal and a negative terminal, defining said secondary signals;
  - a first electrical conductor connecting said positive terminal of said left input to said positive terminal of said left output,
  - a second electrical conductor connecting said positive terminal of said right input to said positive terminal of said right output,
  - a third electrical conductor connecting said positive terminal of said left input to said negative terminal of said right output and comprising a first barrier,
  - a fourth electrical conductor connecting said positive terminal of said right input to said negative terminal of said left output and comprising a second barrier,
  - a fifth electrical conductor comprising a third barrier and connecting said negative terminal of said left output to said negative terminal of said left input,
  - a sixth electrical conductor comprising a fourth barrier and connecting said negative terminal of said right output to said negative terminal of said right input, with said barrier producing a subtracting effect of the common components

for said primary signal producing secondary signals where said common components are eliminated.

2. The device of claim 1 in which said first and second signals define primary signals and in which said third and fourth signals define new and respectively corresponding secondary signals, with one of said new signals being non-zero when there is a positive or negative potential difference between said primary signals.
3. A device that permits, from a pair of signals that define a first source of primary stereo sound comprising common parts, with said common parts comprising parameters such as frequencies, amplitudes, voltages for one and the other of said signals of said pair, with said device comprising parameter barriers aimed at eliminating said common parts from each of the signals of said pair of signals, thus generating a pair of signals that define a second secondary stereo source different from the first source of stereo sound; which permits increasing stereophony when the signals activate loudspeakers and when secondary loudspeakers are added to the primary ones.
4. The device of claim 1 or 3 in which the stereo sound source is an encoded source.
5. The device of claim 1 or 3 in which the stereo sound source is a non-encoded source.
6. The devices of claims 1 or 3 used in the post-amplification passive mode, in which said primary and secondary sound signals are linked to loudspeakers.
7. The devices of claims 1 or 3 used in passive mode in which said primary and secondary sound signals are linked to amplifiers and/or preamplifiers.
8. The devices of claims 1 or 3 used in a post-amplification active mode in which said primary and secondary sound signals are linked to loudspeakers.

9. The devices of claims 1 or 3 used in active mode, in which said primary and secondary sound signals are linked to amplifiers and/or preamplifiers.
10. The device of claim 1 comprising also a tertiary signal and:
- a seventh electrical conductor comprising a fifth barrier and connecting said positive terminal of said left primary signal to said positive terminal of said tertiary signal,
  - an eighth electrical conductor comprising a sixth barrier and connecting said positive terminal of said right primary signal to said positive terminal of said tertiary signal,
  - a ninth electrical conductor linking said negative terminal of said tertiary signal to a negative terminal of a primary signal, with said barriers producing a tertiary signal that corresponds to said common component of said left and right primary signals.
11. The device of claim 1 or 10 in which said barriers are polarized capacitors, diodes, transistors and/or another directional barrier.
12. The devices of claim 6 or 7 in which said secondary sound signals are active.
13. The devices of claim 8 or 9 in which said secondary sound signals are passive.
14. A device that converts two primary signals, a left signal and a right signal of a stereo signal source, into two secondary signals different one from the other; with said secondary signals being identified as follows: a third signal that is defined by a left secondary signal (42), a fourth signal that is defined by a right secondary signal (44); with said secondary signals corresponding to said primary signals but where the common components of said primary signals have been eliminated; with each of said signal comprising a negative terminal and a positive terminal; with said device comprising:
- a first electrical conducting means such as for instance a Secondary Left Feed potential (abbreviated as SGA in French) (52) linking said positive terminal of said left primary signal to said positive terminal of said left secondary signal,

- a second electrical conducting means like a Secondary Right Feed (abbreviated as SDA in French) (54) potential linking said positive terminal of said right primary signal to said positive terminal of said right secondary signal,
  - a third electrical conducting means comprising a first polarized capacitor (60) and linking said positive terminal of said left primary signal to said negative terminal of said right secondary signal;
  - a fourth electrical conducting means comprising a second polarized capacitor (58) and linking said positive terminal of said right primary signal to said negative terminal of said left secondary signal,
  - a fifth electrical conducting means comprising a first polarized blocking capacitor (66) and linking said negative terminal of said left secondary signal to said negative terminal of said left primary signal,
  - a sixth electrical conducting means comprising a second polarized blocking capacitor (64) and linking said negative terminal of said secondary right signal to said negative terminal of said right primary signal; so that the potential difference between said positive terminals of the two primary signals affects the amplitude of the two secondary signals, with said device creating zero secondary signals when said potential difference is zero.
15. The device of claim 14 comprising also two secondary loudspeakers, one left and one right, and where said secondary left and right signals feed the two secondary left and right loudspeakers, respectively, by means of electrical conductors.
16. The device of claim 14 comprising also two primary loudspeakers, one left and one right, and where the primary left and right signals feed also the two primary left and right loudspeakers respectively, by means of electrical conductors.
17. The device of claims 14 to 16 comprising also a box, with said box including two inputs and two outputs, with each input or output comprising a positive terminal and a negative terminal; with said inputs of the box corresponding to the primary signals, with said outputs of said box corresponding to said secondary signals and with said conducting means located inside said box.

18. The device as claimed in Claim 14 further converting said primary signals into a tertiary signal and also comprising a positive terminal and a negative terminal; said tertiary signal corresponding to the components common to said primary signals and where the other components have been eliminated; said device further comprising:
- seventh electric conduction means comprising a polarized capacitor and connecting said positive terminal of said tertiary signal to said positive terminal of said primary left signal,
  - eighth electric conduction means comprising a polarized capacitor and connecting said positive terminal of said tertiary signal to said positive terminal of said primary right signal,
  - ninth electric conduction means connecting said negative terminal of said tertiary signal to said negative terminals of said primary signals, such that said difference in potential influences the amplitude of said tertiary signal, said device creating a tertiary signal identical to said primary signals when said difference in potential is zero.

19. The device as claimed in Claim 18 further comprising a tertiary loudspeaker, and where said tertiary signal feeds said tertiary loudspeaker by means of electric conductors.

20. The device as claimed in any one of Claims 14 and 18 where one or more of said polarized capacitors are replaced by at least one diode, a transistor or other blocking directional electric means.

21. The device as claimed in Claim 14, in which said first blocking capacitor (66) is opposite said second blocking capacitor (64) so as to avoid lowering the impedance allowing blockage when a primary earth potential (56) is positive and allowing passage when a preferred circuit (46) is positive.

22. A method for providing a three-dimensional stereo sound, the method comprising:  
receiving a left primary signal of sound and a right primary signal of sound from a stereo source;  
identifying a common part between said left primary signal and said right primary signal;

. subtracting said common part from the left primary signal to create a left secondary signal;  
subtracting said common part from the right secondary signal to create a right secondary signal; and  
- channeling said secondary left signal and said right secondary signal to respective outputs located so as  
to obtain said three-dimensional stereo sound.

23. The method of claim 22, comprising also the creation of a tertiary signal from said common part, and the transmission of said tertiary signal to a central enclosure.

24. The method of claim 22 or 23, wherein receiving a left primary signal and a right primary signal from a stereo source includes receiving signals from an encoded source.

25. The method of claim 22, 23 or 24 wherein subtracting said common part from the left primary signal and subtracting said common part of the right primary signal includes the use of barriers to prevent said common part from continuing its way.

26. The method of claim 25, wherein the use of barriers includes the use of polarized capacitors.

27. The method of claim 25, wherein the use of barriers includes the use of diodes.

28. The method of any one of claims 22 to 27, wherein channeling said left secondary signal and said right secondary signal includes channeling said left secondary signal to a rear left loudspeaker and channeling said right secondary signal to a rear right loudspeaker.